

AMSI
VACATION
RESEARCH
SCHOLARSHIPS

2021-2022

get a taste for Research this Summer



***INFORMATION
BOOKLET***



Australian Government
Department of Education,
Skills and Employment



Congratulations on receiving a 2021–22 AMSI Vacation Research Scholarship!

This information booklet outlines key components of the scholarship, your research project and AMSIConnect (the exclusive national student conference where you will present your findings to your VRS peers and supervisors).

KEY DATES

Research projects begin (<i>exact date may vary</i>)	1 December 2021
AMSIConnect (<i>attendance is compulsory for duration</i>)	9–11 February 2022
Research report and blog due (<i>proofed by your supervisor</i>)	28 February 2022
AMSI VRS 2020–21 projects posted online	Late March 2022

RESEARCH REPORT

Your research report should be written in a formal style, as per a scientific journal. It must adhere to the AMSI Style Guide (included at the end of this booklet) and be submitted on the AMSI Research Project Template (available for download at vrs.amsi.org.au/information-for-students/).

Refer to the **Report Guidelines** (available at vrs.amsi.org.au/information-for-students/) for more detail on the report writing structure, page limits you must follow and examples of previous successful research reports.

Please submit your research report (after it has been proofed by your supervisor) by **Monday, 28 February 2022** via our online form at tfaforms.com/4927254.

You must supply both a .PDF and Word/Tex file, and the saved files must be named as per the following guide:

LASTNAME_FIRSTNAME_VRS-Report.pdf

CHANGES TO YOUR RESEARCH TOPIC

We understand that minor changes to topics are occasionally required. If you find your project needs alteration in some way, please discuss with your supervisor and email us at vrs@amsi.org.au. If your project is significantly altered and varies greatly from the research project you initially proposed on your VRS application, permission to proceed must be granted by AMSI and your Head of Department.

BLOG POST

The blog post gives you an opportunity to practice discussing your work with a wider audience. It is becoming increasingly important for researchers to develop skills that enable them to discuss their findings with an audience outside academia.

You may write on *one* of these three topics:

- Your research project
- An area of mathematics that you are interested in
- How or why you became interested in mathematics

Blog posts should be **between 300 and 500 words**, written in a manner accessible to non-specialist audiences. If you include equations in your blog please write in plain text. We have provided some information on how to write an engaging scientific blog at the end of this booklet.

Please submit your blog post (after it has been proofed by your supervisor) by **Sunday, 28 February 2021** via our online form at tfaforms.com/4927254.

Saved files must be named as per the following guide:

LASTNAME_FIRSTNAME_VRS-Blog.docx

Below are examples of previous successful blog posts you can refer to:

- [Example 1](#)
- [Example 2](#)
- [Example 3](#)
- [Example 4](#)

The full list of past blogs can be found at vrs.amsi.org.au/student-blogs.

AMSIConnect

AMSIConnect is an exclusive national conference for AMSI Vacation Research Scholars held in February. Over the course of the virtual conference program, VRS Students present their research projects to their peers, hear from invited guest speakers, participate in a careers panel Q&A and network with fellow scholars. This is a highly valuable exercise that will allow you to practice presenting in a professional conference capacity.

Please note: participation at AMSIConnect is compulsory and a condition of accepting an AMSI Vacation Research Scholarship. You must attend for the full duration of the event to fulfil this requirement unless formal arrangements have been made with AMSI.

PRESENTATION GUIDELINES

Each VRS student will be allocated 20 minutes in the conference program and should prepare a **15-minute presentation** of their research. The remaining five minutes is for the chair to introduce the speaker, a short question-and-answer session and presentation changeover time. The best presentation, as voted by AMSIConnect attendees, will be awarded a prize.

Presentations must be supported by a PowerPoint/LaTeX presentation using the AMSIConnect Presentation Template (vrs.amsi.org.au/information-for-students) and adhering to the AMSI Style Guide (included in the VRS Information Booklet).

The audience will be mathematically literate but should not be expected to have specialist knowledge of your project. Please pitch your presentation with this in mind. Consultation with supervisors is expected.

Refer to the **Presentation Guidelines** (available at vrs.amsi.org.au/information-for-students/) for further details and tips on giving a virtual presentation.

SUPERVISOR ATTENDANCE AT AMSIConnect

AMSI strongly encourages VRS supervisors to attend AMSIConnect to provide their student with professional support, to assist with questions if required and to chair a session.

AMSI will send invitations to all supervisors. Students, please speak with your supervisor to invite them to attend.

STAY IN TOUCH

Follow us at [@DiscoverAMSI](#) on [Facebook](#) and [Twitter](#) to stay on top of events, opportunities and general news in the mathematical sciences.

Keep an eye out for when your research reports and blog posts are published on the AMSI VRS website (vrs.amsi.org.au) and share with your friends.

Tag [@DiscoverAMSI](#) and [#AMSIVRS](#) in status updates and photos from AMSIConnect—we'd love to see what you're up to!

AMSI STYLE GUIDE

BODY TEXT

- Ensure all text is clear, legible and appropriate; i.e. Arial, Calibri, Times New Roman (the standard LaTeX font, Computer Modern, is also acceptable)
- Ensure body text is size 12pt font
- Ensure headings are suitably distinguished
- First sentence of first paragraph should be flush with the left-hand margin. All paragraphs thereafter should be indented
- Ensure all figures, graphs and tables are correctly labelled and referenced
- Australian spelling: –ise, **not** –ize
 - e.g. realise, **not** realize
- When referring in the possessive to two people, only place the **'s** after the second name
 - e.g. 'This is demonstrated by Douglas-Richard and Dystra's method.'
- Quoted text should be surrounded by single quotation marks
 - e.g. Einstein famously quoted the following in jest of his peers, 'Do not worry about your difficulties in Mathematics. I can assure you mine are still greater.'
- Quotation marks should be single outer, double inner
 - e.g. 'Then mum said, "Finish your thesis and go to bed," but I ignored her.'

Italics:

- Italicise unfamiliar technical terms that are then immediately defined
 - e.g. 'I started my investigation with *latin square graphs*. A latin square is a square array of numbers...'
 - **Not** 'what I found was that an *infinite* family of latin squares could be constructed'
- Do not italicise all technical terms
 - e.g. generalised quadrangles, **not** *generalised quadrangles*, unless immediately defined
- Do not change fonts when using italics
 - e.g. 'In 1912 Birkhoff introduced the *chromatic polynomial*, which...'
 - **Not** 'In 1912 Birkhoff introduced the *chromatic polynomial*, which...'

REFERENCING/CITATION

- Please use consistent, specific citation
- Please use the Harvard (author-date) referencing system
 - e.g. journal referencing
Author (surname, initial), year, 'Title being referenced,' *Journal*, vol. no, pp. no.
 - e.g. novel referencing
Author (surname, initial), year, *Title*, edition, publishing house, location.
- When referencing articles in languages other than English, use all original titles
- When referencing articles originally printed in languages other than English, please provide translation following the original title

Examples:

Bessant, J 2001, 'The question of public trust and the schooling system', *Australian Journal of Education*, vol. 45, no. 2, pp. 207-226.

Bessant, J & Webber, R 2001, 'Policy and the youth sector: youth peaks and why we need them', *Youth Studies Australia*, vol. 20, no. 1, pp. 43-47.

Robbins, SP 2004, *Organizational behavior*, 11th edn., Pearson Prentice Hall, Upper Saddle River, NJ.

Robbins, SP & DeCenzo, DA 2004, *Fundamentals of management: essential concepts and applications*, 4th edn, Pearson Prentice Hall, Upper Saddle River, NJ.

Blainey, G 2003a, *Black kettle and full moon: daily life in a vanished Australia*, Penguin/Viking, Camberwell, Vic.

Blainey, G 2003b, *The rush that never ended: a history of Australian mining*, 5th edn., Melbourne University Press, Carlton, Vic.

Original:

Pirandello, L, 1921, *Sei personaggi in cerca d'autore*, 10th Edition, Newton Compton, Perugia.

Translation:

Pirandello, L, trans. Eric Bentley, 1921, *Sei personaggi in cerca d'autore (Six Characters in Search of an Author)*, 10th edn., Newton Compton, Perugia.

TIPS ON WRITING YOUR BLOG

1. Find interesting research

You already have interesting research. It's what you will be studying for your VRS Project. But if you would prefer to write about some other area of research that's fine. Or perhaps you would prefer to write about your experience with maths and why you enjoy it so much.

2. Make sure you understand it

We're sure you'll have a deep understanding of your own VRS research, and if you choose another area of research to write about make sure you understand what you're writing about. The better you understand it, the better you'll be able to communicate to your reader.

3. Show why it's interesting first

Tell us what you like about the project: perhaps some interesting applications, something to make it relatable, or interesting to the reader. Do this first so your readers aren't overwhelmed with methods and results first thing.

4. Let the research speak for itself

Don't exclude information because you don't think people will be able to understand it. People want to know all the details, not just the end result, and excluding details will either leave people annoyed because they feel it's too dumbed down, or confused because they don't know how the research came to these conclusions.

5. Don't include details that are only relevant to mathematical scientists

We want these blogs to be accessible to the general public. So don't dumb things down to the extent that the reader feels patronised. Rather, explain the research and results in a way that people without in-depth knowledge of the subject will be able to understand. Try analogies, or explain a practical application. However you chose to do it, try and get the right balance between ease of reading and omission of details.

6. Don't use jargon without explanations

This is not your research report, so be careful about your use of technical language. Basic jargon is fine, but make sure you define any technical terms used within the blog.

7. Tell a story/be creative

This doesn't need to be you spewing out facts onto a page. Make it inventive and creatively use jokes and anecdotes to enhance your article. Perhaps lead the reader through your research, joking

about the hiccups you had along the way. This is not a scientific report; you have the freedom to be creative.

8. Don't leave your work open to misinterpretation

Make sure your point of view or argument is the same all the way through. You can certainly provide alternative thoughts, but make sure the overall message is consistent. Remember, you want someone to feel that they understand your ideas and arguments even if they stop reading halfway through.

9. Visuals are great, so use them wisely

Use images well and you will greatly enhance your article, use them badly and you will confuse your readers. Don't just throw in graphs and tables of data unless they are really helping clarify a point. Once again, remember that this article is for the wider community, not just mathematical scientists.

10. Keep it concise

Your blog should be significantly shorter than your report. Keep it concise and don't get bogged down in unnecessary details. It's an interesting blog, not a PhD submission.

11. Cite your sources

This isn't too crucial for those using their own VRS research. But make sure you give credit where it's required, and if you do have some interesting further reading, include it for those who may want additional information.

12. Get your facts straight

Read over your work to make sure all the facts are right, and then perhaps get a friend or family member to read over it to check that the spelling and grammar are correct.

13. Have fun

At the end of the day, this is about making it enjoyable for your readers and the best way to do that is to make it enjoyable for yourself.

Adapted from scienceofblogging.com